

IN THE CLAIMS /

Please cancel claim 28.

Please amend the claims as follows.

1. A device for extracorporeal purification of mammalian biological fluid comprising;

a bioreactor having inlet and outlet ports for, respectively, ingress and egress of biological fluid; inlet and outlet ports for, respectively, ingress and egress of culture medium; and at least one semipermeable membrane extending therethrough, which membrane defines a first conduit for ingress and egress of biological fluid and a second conduit for ingress and egress of culture medium;

a mixing vessel in fluid communication with the second conduit, wherein the mixing vessel has an inlet port for introduction of living, unattached hepatocytes into the culture medium;

a metal containing substrate for attachment of hepatocytes;

oxygenation means in gaseous communication with the mixing vessel;

pump means for circulation of biological fluid through the first conduit of the bioreactor; and,

pump means for circulation of hepatocytes and culture medium in the mixing vessel and through the second conduit of the bioreactor.

7. The device according to Claim 1 further comprising a biological fluid loop, wherein the biological fluid loop is composed of material compatible with fluids selected from the group consisting of blood, plasma and plasma containing plasma extenders.

16. A method for extracorporeal purification of a biological fluid, the method

comprising:

introduction of at least a theoretical minimum number of living, unattached hepatocytes into a mixing vessel, wherein the mixing vessel is filled with culture medium and is free of air;

incubation to allow attachment of hepatocytes to a metal containing substrate;

circulation of the biological fluid through the bioreactor; and,

circulation of the hepatocytes and culture medium in and from the mixing vessel through a bioreactor having at least one semipermeable membrane passing therethrough, wherein the membrane separates the culture medium from the biological fluid but allows solutes to pass from the biological fluid into the culture medium.

26. A device for extracorporeal purification of mammalian biological fluids comprising:

a bioreactor having and inlet and outlet ports for, respectively, ingress and egress of biological fluid; inlet and outlet ports for, respectively, ingress and egress of culture medium; and at least one semipermeable membrane extending therethrough, which membrane defines a first conduit for ingress and egress of biological fluid and a second conduit for ingress and egress of culture medium;

a port in fluid communication with the second conduit for introduction of living hepatocytes attached to a substrate into the culture medium;

pump means for circulation of biological fluid through the first conduit of the bioreactor; and,

pump means for circulation of hepatocytes and culture medium into and through the second conduit of the bioreactor wherein at least a portion of the

hepatocytes are attached to a metal containing substrate.

29. The device according to claim 26 further comprising means for generating an alternating magnetic field wherein the field will cause the metal containing substrate to be circulated within the bioreactor.

41. A method for extracorporeal purification of a biological fluid, the method comprising:

introduction of at least a theoretical minimum number of living hepatocytes into a first conduit of a bioreactor;

incubation to allow attachment of hepatocytes to a metal containing substrate;

circulation of the biological fluid through a second conduit of the bioreactor, wherein the first and second conduits are separated by a semi-permeable membrane; and,

circulation of the hepatocytes in the first conduit of the bioreactor.

44. The device according to claim 1 further comprising means for generating an alternating magnetic field wherein the field will cause the metal containing substrate to be circulated within the bioreactor.

45. The method according to claim 16 further comprising application of an alternating magnetic field to cause the metal containing substrate to be circulated within the bioreactor.

46. The method according to claim 41 further comprising application of an alternating magnetic field to cause the metal containing substrate to be circulated within the bioreactor.